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EXAMINER

CHOW, CHARLES CHIANG

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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/542,771	Applicant(s) AIZAWA, JUNICHI	
	Examiner Charles Chow	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/20/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Title

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The current title, "Radio transmitting apparatus, radio receiving apparatus, radio communication system, radio transmission method, and radio receiving method", is not clearly indicating the key features of the invention, for the transmission timing of CQI is based on the CQI update cycle information and the CQI repetition count information overlap.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Choi et al. [US 2004/0022,213 A1] in view of Dottling et al. [2006/0285,558 A1].

For claim 1, Choi et al. [Choi] teaches a radio transmission apparatus [UE 130 in Fig. 1/ Fig. 10]

that measures channel quality between the radio transmission apparatus [UE 130] and a communicating party [Node B] and transmits to the communicating party [node B] a CQI (Channel Quality Indicator) that represents a measurement value [UE measures received downlink channel quality & reports CQI back to node B, paragraph 0010, abstract; determining a optimal, CQI report cycle, K value, due to change in channel condition, paragraph 0016, 0019; the K value is the CQI report cycle in paragraph 0014];

a memory that stores CQI update cycle information representing an update cycle of the CQI [the determined CQI report cycles are transmitted to UE, as the storing CQI update cycle information at UE, in abstract, paragraph 0142; the UE has the CQI report cycle, in order to set the CQI report cycle, to perform accurate CQI report, paragraph 0016]; and

CQI repetition count information representing how many consecutive times the same CQI is transmitted [the counter 718 stored with the ACK/NACK counts, for the counting of the same ACKs acknowledge of the normal received data, & the counting of the same NACKs negative acknowledge, failure, of normal received data in paragraph 0116; ACK/NACK is in paragraph 0112]; and

a CQI transmitter [UE 130] that, when a transmission timing of a CQI that is based on the CQI update cycle information [UE transmits CQI report for updating the channel quality based upon the received CQI report cycles in paragraph 0021] and

a transmission timing of a CQI that is based on the CQI repetition count information overlap [the CQI report, update, cycle is overlapping with the transmission timing of the recommended K value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119].

Choi fails to teach the transmitting of the CQI based on the repetition count information to the communicating party with priority.

Dottling et al. [Dottling] teaches the transmitting of the CQI based on the repetition count information to the communicating party with priority [transmitting CQI feedbacks with top priority, associated with time interval for CQI feedback in paragraph 0068, 0073], in order to secure, reliably communicate, the CQI report through a time interval [paragraph 0073]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the

invention was made to upgrade Choi with Dottling's priority for CQI report, in order to secure, reliably communicate, the CQI report through a time interval.

For claims 2, 3, Choi teaches the radio transmission apparatus [UE 130 in Fig. 1/Fig. 10], wherein, when the transmission timing of the CQI based on the CQI update cycle information [UE transmits CQI report for updating the indication of channel quality based upon the received CQI report cycles in paragraph 0021] and

the transmission timing of a CQI that is based on the CQI repetition count information overlap [the CQI report, update, cycle is overlapping with the transmission timing of the recommended K value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119].

the radio transmission apparatus [UE] reports to a higher apparatus/communication party [controlling radio network controller CRNC, paragraph 0092] that the CQI update cycle information and CQI repetition count information in use have an error [the node B changes, reconfigures, the CQI report cycle K when CQI reliability is decreased lower than a threshold & having an error. Node B transmits recommended K value to CRNC, higher apparatus, in paragraph 104-105; the recommended K value is derived from counts in 718/720 paragraph 0116]; and

receives reconfigured CQI update cycle information and CQI repetition count information from the higher apparatus/communication party, and stores these information in the memory [UE receives, stores, the recommended K value & activation time, step 610 in paragraph 0106; the count is stored in ACK/NACK counter 718 in paragraph 0116-0117];

wherein the CQI transmitter transmits the CQI to the communicating party based on the reconfigured CQI update cycle information and CQI repetition count information [UE applies

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the CQI report cycle of the reconfigured k value derived from ACK/NACK counter 718 in paragraph 0106]. .

For claim 4, Choi teaches the radio transmission apparatus [UE 130 in Fig. 1/ Fig. 10], wherein, when the transmission timing of the CQI based on the CQI update cycle information [UE transmits CQI report for updating the indication of channel quality based upon the received CQI report cycles in paragraph 0021] and

the transmission timing of a CQI that is based on the CQI repetition count information overlap [the CQI report, update, cycle is overlapping with the transmission timing of the recommended K value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119],

the radio transmission apparatus reconfigures the CQI update cycle information and CQI repetition count information anew such that the transmission timings do not overlap [the reliability of the CQI report is worse in paragraph 0092; the 720 determines the ACK/NACK counts in order to recommend a new CQI report cycle K, to reconfiguring of the CQI report cycle in paragraph 0116-0117 & steps in Fig. 5/ Fig. 6; to reduce the uplink interference in order to avoid the interference, associated with the timing overlapping in paragraph 0118; Besides, Dottling also indicated the do not overlap the transmission of CQI feedback in paragraph 0071],

stores the reconfigured CQI update cycle information [UE receives, stores, the reconfigured K value as the CQI report cycle in step 408, Fig. 5] and CQI repetition count information in the memory [the counter 718 has the ACK/NACK counts, paragraph 0116-0117], and

reports these new information to the communicating party [node B sends the recommended K value to CRNC, the communication party in paragraph 0104]; and

wherein the CQI transmitter transmits the CQI to the communicating party based on the reconfigured CQI update cycle information and CQI repetition count information [UE applies the k value of the CQI report cycle at the activation time, paragraph 0106].

For claims 5, 16-17, Choi teaches the radio transmission apparatus [UE 130 in Fig. 1/ Fig. 10], wherein, of the CQI update cycle information [CQI report cycle, k value] and the CQI repetition count information [ACK/NACK counts in counter 718], the CQI update cycle information alone is reconfigured [the reconfigure only the recommended k value, CQI report cycle, to update CQI information in paragraph 0104, Fig. 7].

For claim 6, Choi teaches a radio reception apparatus [Node B in Fig. 8-9] that receives a CQI representing channel quality between the radio reception apparatus and a communicating party and decodes the CQI [Node B measures channel condition from the CQI reported by UE, paragraph 0110; CQI decoder 716 & CQI controller 722, for decodes, controls the detection of CQI, paragraph 0116] comprising

a memory that stores CQI update cycle information representing an update cycle of the CQI [the determined CQI report cycles are transmitted to UE for, as the storing CQI update cycle information at UE, in abstract, paragraph 0142; the UE has the CQI report cycle, in order to set the CQI report cycle, to perform accurate CQI report, paragraph 0016]; and

CQI repetition count information representing how many consecutive times the same CQI is transmitted [the counter 718 has the repetition count information of how many times the same ACKs acknowledge of the normal received data, & the repetition count information of how many times the same NACKs negative acknowledge, failure, of normal received data in paragraph 0116; ACK/NACK in paragraph 0112, as the stored CQI repetition count information]; and

a CQI receiver [Fig. 8] and decoder [716] that, when a reception timing of a CQI that is based on the CQI update cycle information and a transmission timing of a CQI that is based on the CQI repetition count information overlap [the CQI decoder controller 722 controls decoding of CQI according the k value of the report cycle; the recommended k value is derived from ACK/NACK counts in paragraph 0116].

receives and decodes the CQI based on the CQI repetition count information with priority [the counter 718 has the ACK/NACK counts of the indication ACK/NACK of the channel quality, paragraph 0116].

Choi fails to teach the decode the CQI with priority.

Dottling teaches the decode the CQI with priority [the transmitting CQI feedbacks with top priority, in paragraph 0068, which is obviously for the decoding of the CQI with priority, in order to achieve the purpose of transmitting CQI with priority], for the secure, reliable communicating of the CQI report through a time interval [paragraph 0073]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Choi with Dottling's priority for CQI report, in order to secure, reliably communicate, the CQI report through a time interval.

For claim 7, Choi teaches the radio reception apparatus [Node B in Fig. 8],

wherein, when the reception timing of the CQI based on the CQI update cycle information and [UE transmits CQI report to node B for updating the indication of channel quality based upon the received CQI report cycles in paragraph 0021] and

the reception timing of the CQI based on the CQI repetition count information overlap [the node B receives CQI report at determined CQI report cycle in paragraph 0142; [the CQI report, update, cycle is overlapping with the transmission timing of the recommended K

value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119].

the radio reception apparatus reports to a higher apparatus [Node B delivers the recommended K value of the CQI report cycle to high apparatus, SRNC or CRNC, paragraph 0142]

that the CQI update cycle information and CQI repetition count information in use have an error, receives reconfigured CQI update cycle information and CQI repetition count information from the higher apparatus [the node B changes, reconfigures, the CQI report cycle K when CQI reliability is decreased lower than a threshold & having an error. Node B transmits recommended K value to CRNC, higher apparatus, in paragraph 104-105; the recommended K value is derived from counts in 718/720 paragraph 0116]; and

stores these information in the memory [UE receives, stores, the recommended K value & activation time, step 610 in paragraph 0106; the count is stored in ACK/NACK counter 718 in paragraph 0116-0117];

wherein the CQI receiver and decoder receives and decodes the CQI based on the reconfigured CQI update cycle information and CQI repetition count information [Node B receives, decodes, CQI report according to determined CQI report cycle in paragraph 0142].

For claim 8, Choi teaches the radio reception apparatus [Node B in Fig. 8],

wherein, when the transmission timing of the CQI based on the CQI update cycle information [UE transmits CQI report for updating the indication of channel quality based upon the received CQI report cycles in paragraph 0021] and

the transmission timing of a CQI that is based on the CQI repetition count information overlap [the CQI report, update, cycle is overlapping with the transmission timing of the

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recommended K value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119],

the radio reception apparatus [Node B] reconfigures the CQI update cycle information and CQI repetition count information anew such that the reception timings do not overlap [the reliability of the CQI report is worse in paragraph 0092; the 720 determines the ACK/NACK counts in order to recommend a new CQI report cycle K, to reconfiguring of the CQI report cycle in paragraph 0116-0117 & steps in Fig. 5/Fig. 6; to reduce the uplink interference in order to avoid the interference, associated with the timing overlapping in paragraph 0118; Besides, Dottling also indicated the do not overlap the transmission of CQI feedback in paragraph 0071],

stores the reconfigured CQI update cycle information [UE receives, stores, the reconfigured K vale as the CQI report cycle in step 408, Fig. 5] and CQI repetition count information in the memory [the counter 718 has the ACK/NACK counts, paragraph 0116-0117], and

reports these new information to the communicating party [the Node B delivers optimal CQI report cycle K value to SRNC or CRNC in paragraph 0142]; and

wherein the CQI receiver and decoder receives and decodes the CQI based on the reconfigured CQI update cycle information and CQI repetition count information [Node B receives, decodes, CQI report according to determined CQI report cycle in paragraph 0142].

For claims 9, 18, Choi teaches the radio reception apparatus [Node B in Fig. 8], wherein, of the CQI update cycle information [CQI report cycle to update CQI information] and the CQI repetition count information [ACK/NACK counts in counter 718], the CQI update cycle information alone is reconfigured [the reconfiguring only the recommended k value, CQI report cycle, to update CQI information in paragraph 0104, Fig. 7].

For claim 10, Choi teaches a communication terminal apparatus [UE 130 in Fig. 1/ Fig. 10] comprising the radio transmission apparatus [elements in Fig. 10 for wireless signal transmission].

For claim 11, Choi teaches a radio base station apparatus [node B in Fig. 1] comprising the radio reception apparatus [elements in Fig. 8 for wireless signal reception].

For claim 13, Choi teaches the radio communication system [Fig. 1], further comprising a higher apparatus [the controlling RNC, CRNC in Fig. 1] that controls a plurality of radio base station apparatuses [controls RNC 111, 112 Fig. 1],

wherein, when a transmission timing of a CQI that is based on the CQI update cycle information and a transmission timing of a CQI that is based on the CQI repetition count information overlap, or when a reception timing of the CQI based on the CQI update cycle information and a reception timing of the CQI based on the CQI repetition count information overlap [UE transmits CQI report for updating the indication of channel quality based upon the received CQI report cycles in paragraph 0021; and the CQI report, update, cycle is overlapping with the transmission timing of the recommended K value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119],

the upper apparatus [SNRC or CRNC] receives information indicating the overlap from the communication terminal apparatus or the radio base station apparatus [node B delivers recommended k value to SRNC or CRNC in paragraph 0142; the indicating the recommended optimal K value, associated with the overlapping of CQI update report cycle & the k value derived from ACK/NACK counts in counter 718, paragraph 0116-0117]; and

reports back new CQI update cycle information and CQI repetition count information to the communication terminal apparatus or the radio base station apparatus [the determined optimal k value is delivered to Node B and UE in paragraph 0142].

For claim 14, Choi teaches a radio transmission method [steps in Fig/ 5-10] that measures channel quality to a communicating party and transmits to the communicating party a CQI that represents a measurement value [UE reports measured channel quality for downlink channel transmitted by node B, paragraph 0009-0010, abstract],

whereby, when a transmission timing of a CQI that is based on predetermined CQI update cycle information and a transmission timing of a CQI that is based on CQI repetition count information overlap [UE transmits CQI report for updating the channel quality based upon the received CQI report cycles in paragraph 0021; and the CQI report, update, cycle is overlapping with the transmission timing of the recommended K value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119],

Choi teaches the SRNC or CRNC delivers the optimal k value to node B & UE [paragraph 0142; k value is based on the counts in ACK/NACK at counter 718, paragraph 0116], but fails to teach the fails to teach the CQI is transmitted with priority.

Dottling teaches the CQI is transmitted with priority [transmitting CQI feedbacks with top priority, associated with time interval for CQI feedback in paragraph 0068, 0073], in order to secure, reliably communicate, the CQI report through a time interval [paragraph 0073]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Choi with Dottling's priority for CQI report, in order to secure, reliably communicate, the CQI report through a time interval.

For claim 12, Choi teaches a radio communication system [Fig. 1] comprising a communication terminal apparatus [UE 130] that transmits a CQI based on predetermined CQI update cycle information [CQI report cycle in abstract] and CQI repetition count information [the recommended k value, the CQI report cycle, is derived from the ACK/NACK counts at counter 718, paragraph 0116-0117], and

a radio base station apparatus [node B] that receives and decodes the CQI based on the predetermined CQI update cycle information and CQI repetition count information [node B receives CQI report based on the CQI report cycle, paragraph 0142],

wherein the communication terminal apparatus [UE] transmits the CQI that is based on the CQI repetition count information, and receives and decodes the CQI based on the CQI repetition count information [UE & node B synchronizing on the determined CQI report cycle for the CQI transmitted from UE, received at node B in paragraph 0142].

Choi fails to teach the transmitting CQI with priority and the radio base station apparatus receives the CQI with priority.

Dotling teaches the transmitting CQI with priority and the radio base station apparatus receives the CQI with priority [the transmitting CQI feedbacks with top priority, associated with time interval for CQI feedback in paragraph 0068, 0073; the transmitting CQI feedbacks with top priority which is obviously for the decoding of the CQI with priority, so as to achieve the purpose of transmitting CQI with priority], for the secure, reliable communicating of the CQI report through a time interval [paragraph 0073]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Choi with Dotling's priority for CQI report, in order to secure, reliably communicate, the CQI report through a time interval.

For claim 15, Choi teaches a radio reception method [Fig. 5-10] that receives a CQI representing channel quality between the radio reception apparatus [node B] and a communicating party UE [the downlink channel quality report between UE & node B, paragraph 0010] and decodes the CQI [node B decodes CQI with decoder 716 in paragraph 0116],

whereby, when a reception timing of a CQI that is based on predetermined CQI update cycle information and a reception timing of a CQI that is based on CQI repetition count information overlap [the node B receives CQI report from UE based upon the received CQI report cycles in paragraph 0021, 0142; and the CQI report, update, cycle is overlapping with the transmission timing of the recommended K value, which is derived from the ACK counts/NACK counts in counter 718 in paragraph 0116-0119],

Choi teaches the CQI based on the CQI repetition count information and decode the CQI [the recommended CQI report cycle K value is derived from the ACK/NACK counts at counter 718, having CQI decoder 718, paragraph 0116], but fails to teach the CQI is received and decoded with priority

Dottling teaches the CQI is received and decoded with priority [the transmitting CQI feedbacks with top priority, associated with time interval for CQI feedback in paragraph 0068, 0073; the transmitting CQI feedbacks with top priority which is obviously for the decoding of the CQI with priority, so as to achieve the purpose of transmitting CQI with top priority], for the secure, reliable communicating of the CQI report through a time interval [paragraph 0073]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Choi with Dottling's priority for CQI report, in order to secure, reliably communicate, the CQI report through a time interval.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Lundby et al. [US 6,985,453 B2] teaches the remote station transmits measured channel link quality message periodically to based station based on the updated cycles t1 to t3 [Fig. 3D; Fig. 5, abstract, col. 4, lines 59-60, col. 4, line 48 to col. 5, line 26; col. 7, lines 43-67].

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B. Zimmerman et al. [US 6,775,547 B2] teaches the updating the transmission quality measurement period utilized by the remote station for sending back report to base station [abstract, Fig. 1, col. 5, lines 24-37; col. 4, lines 42-62; col. 3, lines 39-41; the better the quality, the longer of the transmission quality period. 9, line 57 to col. 10, line 30].

C. Yoshimi et al. [US 5,603,093] teaches the synchronizing to eh transmitting time [step S1, Fig. 7A] & monitoring of the timer to measure the link quality & reporting to a base station. The timer can be set to 1 or 5 minutes in col. 7, lines 10-60].

D. Other prior arts are considered also. They are: Dottling et al. [US 2006/0133,402 A1], Yu et al. [US 2005/0191,965 A1], Araki et al. [US 2005/0255,807 A1], Marinier et al. [US 2007/0047,502 A1], Malm [US 2007/0026,803 A1], Thornton et al. [US 2004/0176,040 A1], D'Amico et al. [US 2004/0032,853 A1], Kim et al. [US 2005/0243,793 A1], Fukui [US 7,089,015 B2], Pietraski [US 2004/0142,698 A1].

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR

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only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow *CC*,

March 15, 2007.


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